Procuring Major Information Systems: How to Pick A Winner

by David W. Harris

When you procure a major information system for your water/wastewater utility, how do you select a system that will provide long life, maintain a high level of usability, and justify the investments you will make? This article describes a process that has been used by water and wastewater utilities to successfully procure a variety of critical information systems. The process emphasizes a balanced approach in which important information about software companies, their people, and their products, is evaluated in steps and builds to a consensus decision for a preferred product.

Purpose of Information Technology

Major information systems fall under the general category of information technology (IT). Figure 1 depicts a simple framework that shows the major assets of a utility and the relationship of IT to other assets. Essentially the IT platform supports higher level needs for knowledge in the form of processed data. That data enables effective management of other assets such as customers, utility staff, and the physical infrastructure.

When a utility considers replacing a major information system, it should consider questions such as the following: How will this system improve customer satisfaction? How will the system improve employee productivity and generate labor cost savings? In what ways will the system improve our operations performance and reliability of physical assets?

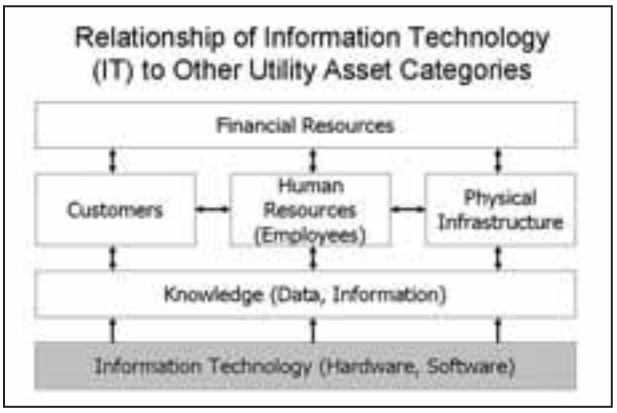

Figure 1. Information technology versus other utility asset categories

Major Information Systems for Utilities

Most water or wastewater utilities have a fairly common set of information system requirements. These requirements result in the same systems at nearly every utility. A simplified diagram of a typical utility "system architecture" is shown in figure 2.

At the lowest level of the architecture are the telecommunication networks, servers, desktop computers, and certain common software applications such as e-mail and an "office" suite. This lowest level provides the foundation, or infrastructure, for the overall IT platform.

The major information systems (or core systems) used by a utility run on top of the IT infrastructure. These systems are

- A customer service and utility billing system (water utilities)
- A human resources and payroll system
- A financial management or accounting system
- A computerized maintenance management system
- A distributed control system or SCADA system
- A geographic information (mapping) system
- A laboratory information management system

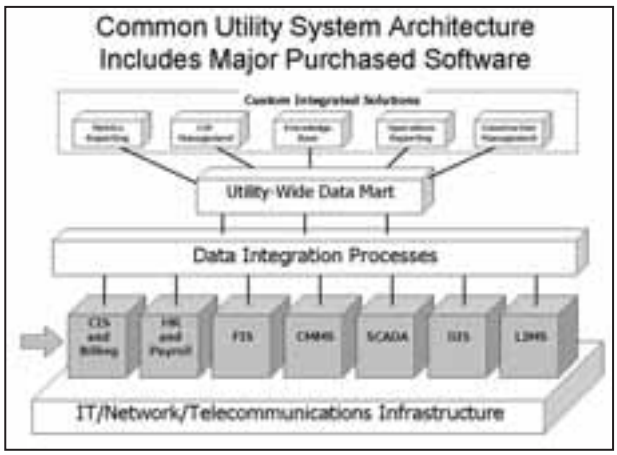

Figure 2. Common utility system architecture

Some larger utilities may be able to satisfy their needs for the first three applications with a so-called enterprise resource planning (ERP) system (e.g., SAS or Oracle). Many utilities may find an ERP system to be too costly or may prefer to seek a more generic "best of breed" solution. Either way, the overall IT platform will consist of multiple major information systems.

Software Selection and Procurement Goals

At the selection and procurement stage, a utility should be clear about objectives and continuously ask if the selection process and the system being procured will help the utility reach its goals. Typical goals may include the following:

- Achieve the longest possible useful system life—reduce the frequency at which we replace systems (replacement cost is very high).
- Select software vendors that will remain viable in the market—ride the next technology wave with them (that's why we pay maintenance fees!).
- Select software that can adapt to new and more efficient ways of doing work—look for configurability, not customization (programming is expensive).
- Select software that plays well with others—integration with your IT infrastructure and data sharing between applications are essential for efficiency.

Software Release History and Plans

When a utility gathers information from software vendors about their products, it should pay attention to the software release history of the vendors, their product plans, and their capacity to perform software research and development (R&D). Each of these factors is a predictor of whether the vendor and its products will remain viable.

Figure 3 contrasts the release history of two hypothetical software companies. One vendor has a long history, and at year 1 has a robust product with many features and functions. However, as technology changes, the first vendor fails to make a timely transition and instead opts to generate revenue through maintenance fees from its installed base. Eventually, this vendor loses market share and the capacity to introduce new products.

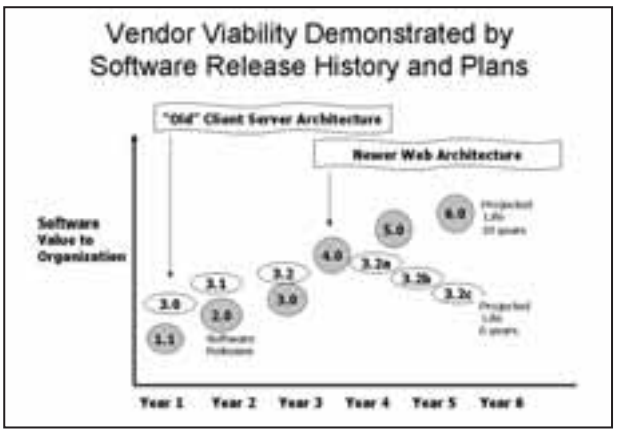

Figure 3. Vendor viability

By contrast, a second vendor, with a somewhat inferior product at the outset, seizes the opportunity to innovate as technology changes and retains its value in the market. That second vendor helps its customers transition from old to new, thereby protecting their original software investment. The second vendor offers better viability.

Through a Request for Information (RFI) or Request for Proposal (RFP) process, it is possible to collect enough information from software vendors to form a picture of their software release history and plans, as well as their level of commitment to R&D as measured by staffing and investment in development activities. This information will help in selecting a vendor most likely to sustain their market share and viability.

Software Procurement Options

Software procurement approaches typically followed by utilities and governments follow three main variations:

1) Direct purchase following an informal evaluation of limited options
2) Evaluation followed by a public bid and award to qualified low bidder
3) Evaluation followed by ranking and negotiation with preferred vendor

The first option, while appropriate for some software purchases, is not recommended for the major information systems. The second two options are depicted in figure 4.

Both the "classic bid process" and the "negotiated procurement process" can be used to successfully procure major information systems. However, the classic bid process, when used for software and related implementation services, has several potential weaknesses:

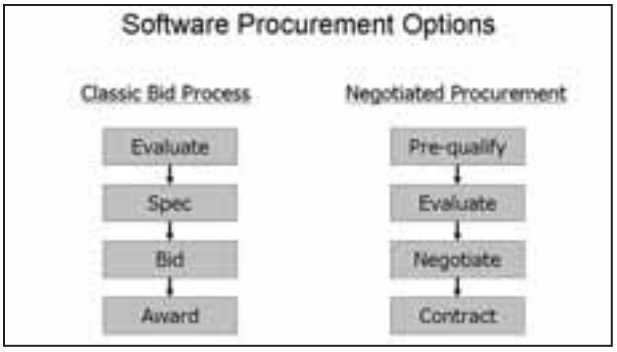

Figure 4. Software procurement options

- Many software vendors and their implementation service partners are not comfortable with the bid process and will resist providing a complete conforming bid. The best software may be thrown out for nonconformance.
- With a strict low-bid award, there is no assurance that the software best suited to your needs will be the qualified low bidder—you may end up with second or third best. Software "intangibles" do not show up in the bid price.
- If the software is specified so tightly that you are assured the only qualifying software is the one you want, there will likely not be competition in the bid because most software vendors discourage competition between their system integrators. You may receive only one bid for the product you want.
- Given a lack of competition, the bid price may be significantly higher than what is typical or negotiable.

Negotiated Procurement Process

Many states allow utilities and public agencies to procure goods and services using a negotiated procurement, or RFP process, if it can be shown that the management interests of the utility are better served by that process. In the case of major information systems, it is readily apparent that management of the utility is directly dependent on procuring the systems that best fit the utilities needs, and that procurement of a poorly fitting system will adversely affect the utility.

The negotiated procurement process typically consists of four phases, with activities in each phase as follows:

1) Pre-qualify phase: From all possible vendors, create a short list of six to eight vendors. This can be done with limited Internet research or the assistance of an expert consultant. Focus on market-leading products from vendors that serve both large and mid-size customers. Exclude vendors who do not support your standard database (for example, Oracle, SQL Server, or DB2). However, you may include a new company that is considered a rising star.
2) Evaluate phase: Issue a Request for Information and Optional Demonstration. Solicit information about the vendor, the software product, and the implementation approach, as well as a budget cost estimate for system installation and training. Prepare a preliminary ranking using written responses. Invite the top three or four vendors to give demonstrations of their systems. The demonstrations should be "scripted"—based on scenarios provided to the vendors of the most important and unique needs of your organization. Rank the vendors again immediately following the last demo. A consensus of the evaluation team is always desirable.
3) Negotiation phase: Solicit a detailed scope and cost proposal from the top-ranked vendor. Use traditional face-to-face negotiation.

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Look for significant price concessions on software and for implementation services exactly matched to your needs. Total project cost should be significantly less than the original budget provided in response to the RFI.

4) Contract phase: Do not rush through this phase. Any ambiguities in scope or price should be ironed out prior to executing a contract. Also, don't succumb to software vendor pressure, which typically occurs at the close of their financial periods.

Conclusions

Every utility uses a common set of major information systems. These systems provide the backbone for effective information management in operations, maintenance, customer service, and financial management. When selecting new systems, a negotiated procurement process is recommended that will help achieve procurement goals, particularly in acquiring a system that will provide long life. Utilities are especially encouraged to consider the business characteristics of the software vendors. In the long run, software from a more responsive and viable vendor will be a wiser choice and a better technology investment.

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